

CLAIMS

1. A method of performing a requested service on behalf of a requesting user, the method comprising:
- 5 receiving at a user device accessible to the user a signal representative of a description of the requested service expressed in a first service description ontology together with either input data expressed in a first operational ontology or an indication that input data will subsequently be provided in the first operational ontology from a specified source if a suitable service is located;
- 10 performing a search for a suitable service through a plurality of services accessible to the user device, each accessible service having an associated service description expressed in a corresponding service description ontology and having an associated operational ontology, the searching being carried out by comparing the service description of each accessible service with the service description of the requested
- 15 service, the comparison step including using, or forming and using, service description ontology mappings where necessary and, in respect of at least the or each, if any, of the accessible service having a service description matching the requested service, determining if its operational ontology is compatible with the first operational ontology and if so, determining that the or each such accessible service having a matching service
- 20 description and a compatible operational ontology is a suitable service;
- invoking the suitable service or one of the suitable services, if at least one has been found, including translating if necessary the input data from the first operational ontology into the operational ontology of the suitable service and sending the, possibly translated, input data to the suitable service or informing it of from where to obtain the
- 25 input data; and
- translating, if necessary, the output data from the suitable service and presenting the, possibly translated, output data to the user.
- 30 2. A method of invoking, from a device connected to a computer network, an electronic service, from amongst a plurality of such services, available from the network, the method comprising:
- receiving an electronic signal representative of a request for an electronic service, the service request being expressed in a first ontology;

forming a group of mappings each of which specifies a method for mapping from the first ontology to another ontology;

using the formed group of mappings to compare the received service request with descriptions of services available on the network expressed in the first ontology or
5 any of the ontologies to which a mapping is available from the first ontology in the formed group of mappings;

selecting one of the electronic services available on the network based on the result of the comparison; and

transmitting an electronic signal to invoke the selected service.

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3. A method according to claim 2 further comprising comparing the ontology in which the input data is intended to be supplied to an electronic service once located, and in which the resulting output data is to be output by the service, with the operational ontology of the selected service, and if these are different, determining if a mapping is
15 available on the network for mapping between these ontologies and if not, then trying to find a new service to select.

4. A method according to any one of the preceding claims further comprising compiling a mapping database of mappings from one ontology to another and building the
20 mapping database according to the following method:

populating the mapping database with a plurality of direct mappings from one ontology to another; and subsequently

upon receiving a service request expressed in a first ontology, generating a first set of mappings which map from said first ontology to a specified target ontology by
25 selecting appropriate mappings from the mapping database;

forming a second set of mappings which map from any of the target ontologies of the mappings in the first set to a specified secondary target ontology which is different from the first ontology and all of the target ontologies of the mappings in the first set, by selecting any such mappings from the mappings database; and

30 storing in the mappings database an indication of a new mapping from said first ontology to the secondary target ontology corresponding to one of the mappings in the second set, together with a reference to each of the corresponding mappings in the first and second sets required to make the mapping from the first ontology to the secondary target ontology.

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5. A method of operating a computer network comprising:
providing one or more groups of computer programs and associated data so as to provide one or more services to other users of the computer network,
storing in association with each such service a description of the respective
5 service expressed in a respective ontology,
storing in association with each such service an indication of the respective ontology in which its corresponding service description is expressed, and
making both the service description and the indication of the ontology in which it is expressed available for viewing by potential users of each such respective service.
- 10 6. A user device for performing a requested service on behalf of a requesting user, the device comprising:
receiving means for receiving a signal representative of a description of the requested service expressed in a first service description ontology together with either
15 input data expressed in a first operational ontology or an indication that input data will subsequently be provided in the first operational ontology from a specified source if a suitable service is located; and
suitably programmed processing means for:
performing a search for a suitable service through a plurality of services
20 accessible to the user device, each accessible service having an associated service description expressed in a corresponding service description ontology and having an associated operational ontology, the searching being carried out by comparing the service description of each accessible service with the service description of the requested service, the comparison step including using, or forming and using, service description
25 ontology mappings where necessary and, in respect of at least the or each, if any, of the accessible service having a service description matching the requested service, determining if its operational ontology is compatible with the first operational ontology and if so, determining that the or each such accessible service having a matching service description and a compatible operational ontology is a suitable service;
30 invoking the suitable service or one of the suitable services, if at least one has been found, including translating if necessary the input data from the first operational ontology into the operational ontology of the suitable service and sending the, possibly translated, input data to the suitable service or informing it of from where to obtain the input data; and

translating, if necessary, the output data from the suitable service and controlling output means to present the, possibly translated, output data to the user.

- 5 7. Apparatus for searching for and invoking an electronic service available from a computer network, the apparatus including:
- receiving means for receiving an electronic signal representative of a request for an electronic service, the service request being expressed in a first ontology;
- digital processing and storage means for forming a group of mappings each of
- 10 which specifies a method for mapping from the first ontology to another ontology;
- processing means for using the formed group of mappings to compare the received service request with descriptions of services available on the network expressed in the first ontology or any of the ontologies to which a mapping is available from the first ontology in the formed group of mappings;
- 15 processing means for selecting one of the electronic services available on the network based on the result of the comparison; and
- transmission means for transmitting an electronic signal to invoke the selected service.
- 20 8. A computer program or programs arranged such that while it or they are executed on a computer, it or they cause the computer to carry out the method of any of claims 1 to 5.
9. A computer readable carrier medium carrying the computer program or programs
- 25 of claim 8.